

Amendments to the Claims:

1.-34. (Cancelled).

35. (Currently Amended). A method of treating human disc diseases comprising the steps of:

- a) providing a minced human intervertebral disc cells;
- b) culturing said minced human intervertebral cells under conditions to propagate and form a monolayer of human intervertebral disc cells;
- c) isolating the human intervertebral disc cells from said monolayer;
- d) seeding said isolated cells in a carrier ~~in the form of a hydrogel~~ such that the isolated cells are dispersed and distributed in the carrier ~~forming a three-dimensional structure~~;
- e) culturing said dispersed and distributed cells in said ~~three-dimensional structure~~ carrier; and
- f) implanting said ~~three-dimensional structure~~ carrier into a target disc area needing treatment in a human patient.

36. Previously Cancelled.

37. (Currently Amended) The ~~therapeutic composition~~ method according to of Claim 35 wherein said carrier is a member of the group consisting of alginate, agarose, collagen, and mixtures thereof.

38. (Currently Amended) The ~~therapeutic composition~~ method according to of Claim 35 wherein at least a portion of said ~~in-vitro~~ propagated human intervertebral disc cells have re-expressed extracellular matrix materials.

39. (Currently Amended) A method of treating a diseased or injured intervertebral disc having nucleus and annulus regions, comprising the steps of:

- obtaining live intervertebral human disc cells;

culturing said intervertebral disc cells under conditions to propagate cultured disc tissue;  
and  
implanting said cultured disc tissue into a target disc area needing treatment in a human patient.

40. (Previously Added) The method according to Claim 39, wherein said live intervertebral disc cells are obtained from said human patient to be treated.

41. (Currently Amended) The method according to Claim 39, ~~wherein~~ further comprising the step of mincing said intervertebral disc cells ~~tissue are mined~~ to obtain an explant prior to culturing.

42. (Previously Added) The method according to Claim 39, wherein said cultured human intervertebral disc tissue is combined with a carrier material.

43. (Currently Amended) The method according to Claim 42, wherein said carrier material is selected from the group consisting of alginate, agarose, collagen, ~~collagen derivatives~~ and mixtures thereof.

44. (Currently Amended) The method according to Claim 41, wherein said explant is cultured in the presence of ~~serum, growth factors or cytokines~~ a material selected from the group consisting of fetal calf serum and fetal bovine serum.

45. (Currently Amended) The method according to Claim 41, wherein said explant is cultured in the presence of ~~transforming~~ a material selected from the group consisting of growth factor beta (TGF- $\beta$ ), insulin-like growth factor I, insulin-like growth factor II, basic fibroblast growth factor, acidic fibroblast growth factor, platelet-derived growth factor, insulin, human recombinant bone morphogenetic protein 2, and vitamin D.

46. (Previously Added) The method according to Claim 39, wherein said implanting step comprises:

debriding diseased or injured disc tissue in said patient; and  
then delivering said cultured human intervertebral disc cells into the area of  
debridement.

47. (Currently Amended) The method of Claim 41, further including the steps of:

(a) culturing said explant under conditions to propagate a monolayer of human intervertebral disc tissue, wherein said disc tissue can be isolated and further propagated upon passaging;

(b) isolating said human intervertebral disc tissue from said monolayer to form isolated disc tissue;

(c) distributing said isolated human intervertebral disc tissue in a carrier material such that said isolated disc tissue forms a three-dimensional structure; and

(d) culturing said ~~distributed~~ human intervertebral tissue in said three-dimensional structure.

48. (Previously Added) The method according to Claim 47, wherein said live intervertebral disc cells are obtained from said human patient to be treated.

49. (Previously Added) The method according to Claim 47, wherein said cultured human intervertebral disc tissue is combined with a carrier material.

50. (Currently Amended) The method according to Claim 49, wherein said carrier material is selected from the group consisting of alginate, agarose, collagen, ~~collagen derivatives~~ and mixtures thereof.

51. (Currently Amended) The method according to Claim 47, wherein said explant is cultured in the presence of ~~serum, growth factors or cytokines~~ a material selected from the group consisting of fetal calf serum and fetal bovine serum.

52. Canceled.

53. (Currently Amended) A cultured disc tissue for use in treating human disc diseases or injuries prepared according to the steps of:  
obtaining live intervertebral disc cells;  
culturing said live intervertebral disc cells under conditions to propagate cultured disc tissue;  
combining said cultured disc tissue with a carrier; and  
keeping said cultured disc tissue viable until use.

54. (Currently Amended) The cultured disc tissue according to Claim 53, ~~wherein~~ further comprising the step of mincing said intervertebral disc cells tissue ~~are minced~~ to obtain an explant prior to culturing.

55. (Currently Amended) The cultured disc tissue according to Claim 53, wherein said tissue is cultured in the presence of ~~serum, growth factors or cytokines~~ a material selected from the group consisting of fetal calf serum and fetal bovine serum.

56. (Currently Amended) The cultured disc tissue according to Claim 53, wherein said tissue is cultured in the presence of ~~transforming~~ a material selected from the group consisting of growth factor beta (TGF- $\beta$ ), insulin-like growth factor I, insulin-like growth factor II, basic fibroblast growth factor, acidic fibroblast growth factor, platelet-derived growth factor, insulin, human recombinant bone morphogenetic protein 2, and vitamin D.

57. Cancelled.

58. (Currently Amended) The cultured disc tissue according to Claim 54, wherein said carrier material is selected from the group consisting of alginate, agarose, collagen, ~~and derivatives~~ and mixtures thereof.